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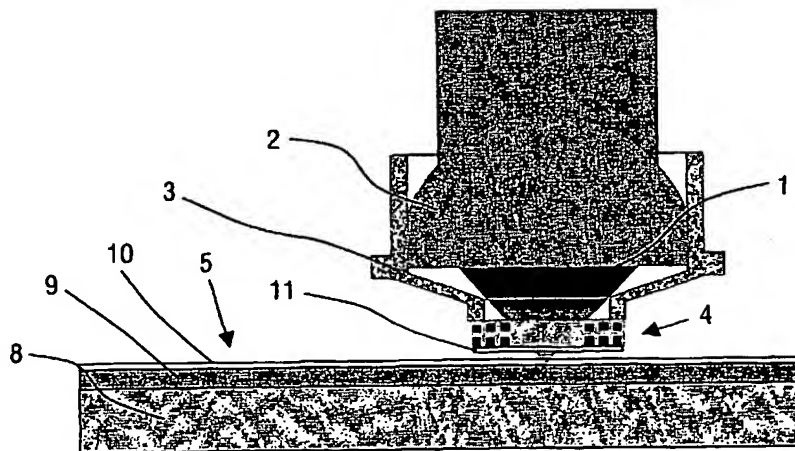
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**Declaration under Rule 4.17:**

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,

[Continued on next page]

(54) Title: OPTICAL RECORDING AND READING SYSTEM, OPTICAL DATA STORAGE MEDIUM AND USE OF SUCH MEDIUM



(57) Abstract: An optical recording and reading system for use with an optical data storage medium (5) is described. The system comprises the medium (5) having a recording stack (9), formed on a substrate (8). The recording stack (9) is suitable for recording by means of a focused radiation beam (1) with a wavelength  $\lambda$  in air. The recording stack (9) has a first optical surface (6) most remote from the substrate (8). An optical head (3), with an objective (2) having a numerical aperture NA and from which objective (2) the focused radiation beam emanates (1) during recording, is (2) arranged on the recording stack (9) side of said optical data storage medium (5). The objective has a second optical surface (7) closest to the recording stack (9), and is adapted for recording/reading at a free working distance  $d_F$  of smaller than 50  $\mu\text{m}$  from the first optical surface (6). At least one of the first optical surface (6) and the second optical surface (7) is provided with a transparent hydrophobic layer (10) that has a refractive index  $n$  and has a thickness smaller than 0.5 $\lambda$ . In this way reliable recording and reading is achieved, specifically contamination build-up on the second optical surface (7) is prevented or counteracted.

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MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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# INTERNATIONAL SEARCH REPORT

PCT/IB 03/02726

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 G11B7/135 G11B7/24

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 G11B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 298 029 B1 (NAKAMURA KIMIO ET AL) 2 October 2001 (2001-10-02) column 3, line 60 -column 5, line 25; figures 1,2	1,4-7,11
Y	US 5 311 500 A (HIGUCHI MANABU ET AL) 10 May 1994 (1994-05-10)	1,4-7,11
X	column 2, line 24-30; figure 2 column 3, line 24 -column 6, line 16	8-10
Y	US 2002/015373 A1 (HAJJAR ROGER ET AL) 7 February 2002 (2002-02-07) paragraphs [0025]-[0027],[0042]-[0044]; figure 3A	4,5,7
X	US 2002/015914 A1 (FUKUI YUKIO ET AL) 7 February 2002 (2002-02-07) paragraphs [0082],[0083]	8-10
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
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- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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- "&" document member of the same patent family

Date of the actual completion of the international search

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## INTERNATIONAL SEARCH REPORT

PCT/IB 03/02726

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 406 569 A (TEIJIN LTD) 9 January 1991 (1991-01-09) page 4, line 51 -page 5, line 3 ---	1,4-11
A	US 4 983 505 A (HIGUCHI MANABU ET AL) 8 January 1991 (1991-01-08) column 3, line 24 -column 6, line 29 ---	1,4-11
A	GB 2 110 115 A (RCA CORP) 15 June 1983 (1983-06-15) page 2, line 53-78 ---	1,4-11
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# INTERNATIONAL SEARCH REPORT

PCT/IB 03/02726

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1, 4-11

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1,4-11

the first optical surface is provided with a transparent hydrophobic layer

2. Claims: 1-7

the second optical surface is provided with a transparent hydrophobic layer

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PCT/IB 03/02726

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